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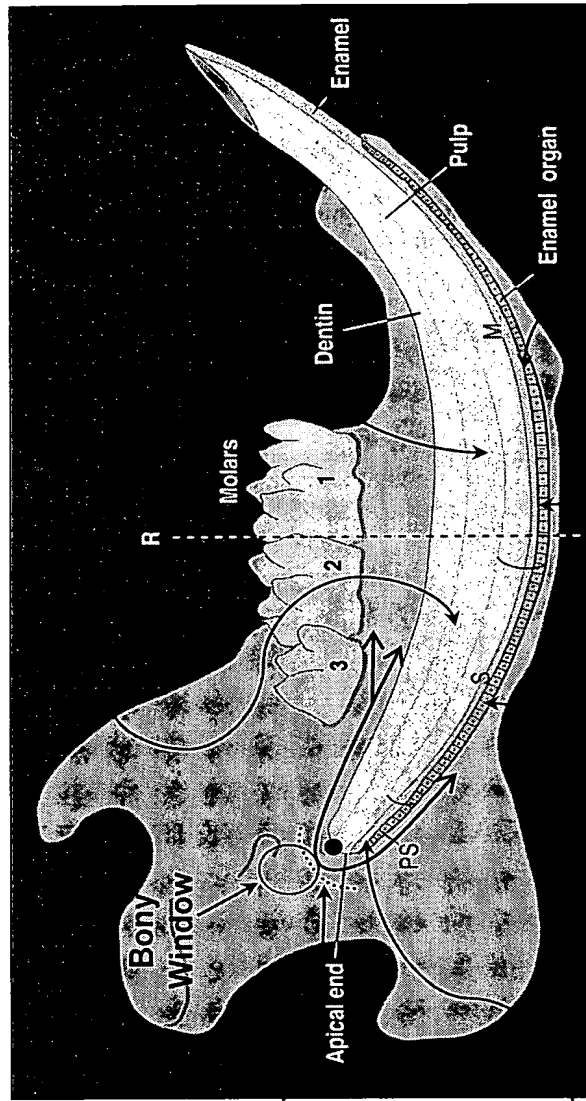
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The invention

The invention is a model for the evaluation of cell and tissue activities. Such model can be used, among other things, for measuring the toxicity of a compound, the anti-inflammatory effect, and/or the anti-cancer effects, since the rodent incisor comprises zones representative of all stages of cell development.



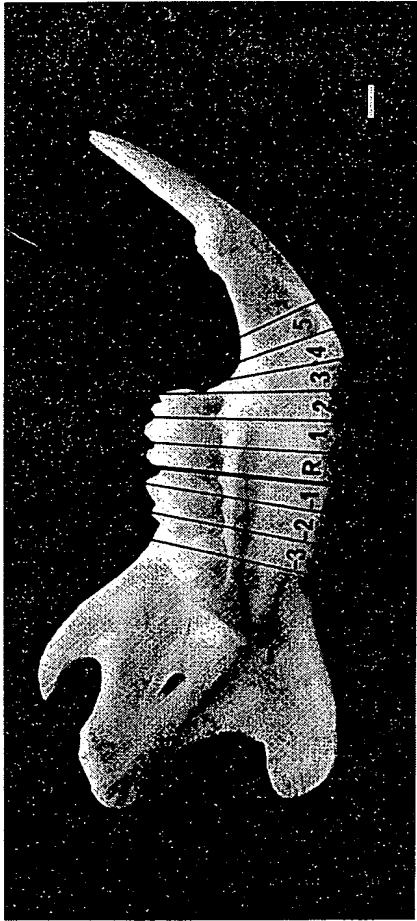
Zone of
Active Bone
Remodeling

Zone of Cell
Division and
Differentiation

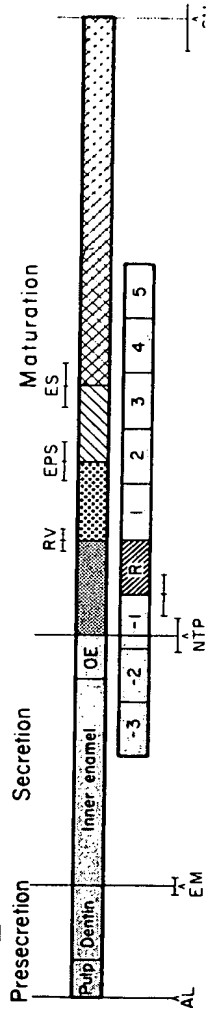
Zone of Active
Protein Synthesis

Zone of
Apoptosis

Zone of Active
Ion Transport



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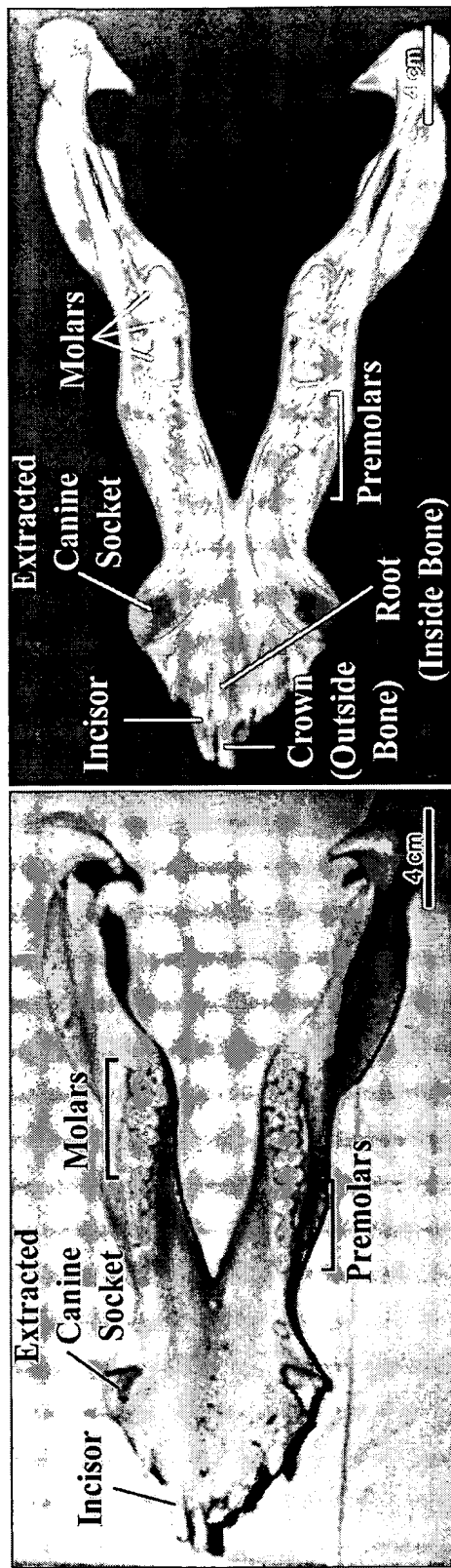


Histomorphometry

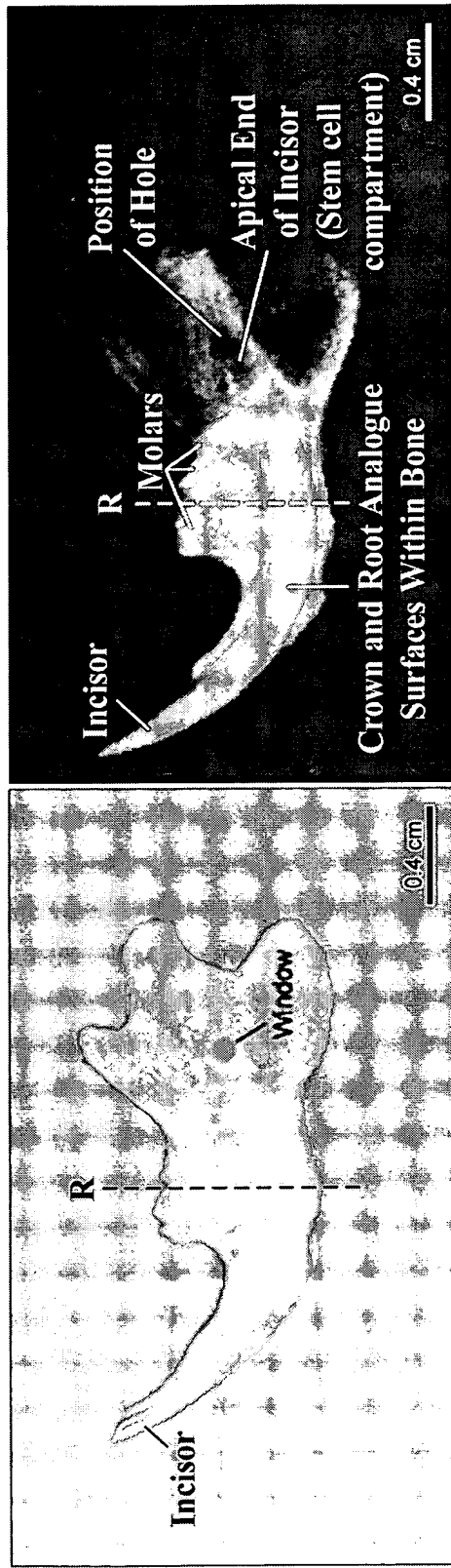
- Bone histology is the study of bone by light microscopy. It provides qualitative information, including the overall structure and distribution of bone components.
- Bone histomorphometry includes the measurement of morphologic components, such as osteoid thickness and wall thickness. Histomorphometry can also estimate kinetic variables through the use of fluorescent labels.

Source: Erksen et al., Bone Histomorphometry, Raven Press, 74p, 1994

The Pig Mandible consists of a single fused bone



The Rat Mandible consists of two distinct hemimandibles, one is shown below



The present invention vs Ouhayoun et al

- Rodent (different from swine)
- Continuously eruptive model
- Catabolic/anabolic analysis (not affected by damage or repair)
- All stages and parts of the tooth are accessible and mapping can be precisely performed over time
- Multiple generation of cells can be followed (progeny)
- 2 hemimandibule allow to have a control in the same animal
- Swine
- No continuous growth
- Destruction/repair evaluation
- Only the formed root is accessible and no mapping over time is available since it would require many animals at different development stages
- One generation of cells only
- 1 mandibule, control has to be another animal